

Mr. Timothy Harris
Witt Industries, Inc.
4454 Steel Place
Cincinnati, Ohio 45209

Re: Registered Operation Status,
035-12966-00037

Dear Mr. Harris:

The application from Witt Industries, Inc. Galvanizing Division, located at 2415 South Walnut Street, Muncie, Indiana relating to the operation of a hot dip galvanizing plant with a maximum usage rate of 200 pounds of molten zinc per hour for the small kettle and 500 pounds of molten zinc per hour for the large kettle, which was received on November 21, 2000, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, it has been determined that this plant which includes the following equipment is classified as registered:

- (a) One (1) large shop caustic tank, which has a capacity of 14,000 gallons;
- (b) One (1) small shop caustic tank, which has a capacity of 6,000 gallons;
- (c) Five (5) large shop hydrochloric acid pickling tanks (1, 2, 3, 4, & 5), each has a capacity of 14,000 gallons;
- (d) One (1) hydrochloric acid storage tank, which has a capacity of 5,000 gallons;
- (e) Two (2) small shop hydrochloric acid pickle tanks, each has a capacity of 6,000 gallons;
- (f) One (1) large shop preflux tank, which has a capacity of 14,000 gallons;
- (g) One (1) large zinc kettle, which has a capacity of 650,000 pounds of zinc;
- (h) One (1) small zinc kettle, which has a capacity of 124,000 pounds of zinc
- (i) One (1) natural gas-fired galvanizing kettle large shop, which has a heat input capacity of 25 million Btu per hour (mmBtu/hr);
- (j) One (1) natural gas-fired galvanizing kettle small shop, which has a heat input capacity of 12.48 mmBtu/hr;
- (k) One (1) natural gas-fired galvanizing large shop caustic burner, which has a heat input capacity of 0.0015 mmBtu/hr;
- (l) One (1) natural gas-fired galvanizing small shop caustic burner, which has a heat input capacity of 0.00018 mmBtu/hr;
- (m) Galvanizing large shop hot sticks, which has a heat input rated at 0.40 mmBtu/hr; and
- (n) Welding operations, one (1) Metal Inert Gas (MIG) welding, which has a maximum hourly rate of 1 pound per hour, and one (1) welding stick, which has capacity of 6.0 electrode per hour, and an oxyacetylene flame-cutting operation, which is capable of cutting 2 inches of metal per minute. The welding operations including the oxyacetylene flame-cutting operation are used for maintenance purposes.

The following conditions shall be applicable:

1. Opacity Limitations [326 IAC 5-1-2]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

2. Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

3. Particulate Matter Emission Limits [326 IAC 6-3]

Pursuant to 326 IAC 6-3 (Process Operations) the PM emissions from the following facilities shall be limited as follows:

Process/Facility	Process Weight Rate (ton/hr)	Allowable PM Emissions (lb/hr)
Large Shop Galvanizing	3.75	9.9
Small Shop Galvanizing	1.6	5.6
Welding	$0.00365 < 0.05$	0.551

This registration is a revised registration issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Management that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3)). The annual notice shall be submitted to:

**Compliance Data Section
Office of Air Management
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015**

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Management (OAM) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

APD

cc: File - Delaware County
Delaware County Health Department
Air Compliance - Jim Thorpe
Permit Tracking - Janet Mobley
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak

Registration Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3).

Company Name:	Witt Industries, Inc., Galvanizing Division
Address:	2415 South Walnut Street
City:	Muncie
Authorized individual:	Timothy Harris
Phone #:	(513) 871-5700
Registration #:	035-12966-00037

I hereby certify that Witt Industries, Inc., Galvanizing Division is still in operation and is in compliance with the requirements of Registration 035-12966-00037.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management (IDEM)
Office of Air Management

Technical Support Document (TSD) for Registered Emission Units

Source Background and Description

Source Name:	Witt Industries, Inc. Galvanizing Division
Source Location:	2415 South Walnut Street, Muncie, Indiana 47302
County:	Delaware
Construction Permit No.:	035-12966-00037
SIC Code:	3479
Permit Reviewer:	Aida De Guzman

The Office of Air Management (OAM) has reviewed an application from Witt Industries, Inc., Galvanizing Division relating to the operation of a hot dip galvanizing plant, with a maximum usage rate of 200 pounds of molten zinc per hour for the small kettle and 500 pounds of molten zinc per hour for the large kettle. This plant includes the following equipment:

- (a) One (1) large shop caustic tank, which has a capacity of 14,000 gallons;
- (b) One (1) small shop caustic tank, which has a capacity of 6,000 gallons;
- (c) Five (5) large shop hydrochloric acid pickling tanks (1, 2, 3, 4, & 5), each has a capacity of 14,000 gallons;
- (d) One (1) hydrochloric acid storage tank, which has a capacity of 5,000 gallons;
- (e) Two (2) small shop hydrochloric acid pickle tanks, each has a capacity of 6,000 gallons;
- (f) One (1) large shop preflux tank, which has a capacity of 14,000 gallons;
- (g) One (1) large zinc kettle, which has a capacity of 650,000 pounds of zinc;
- (h) One (1) small zinc kettle, which has a capacity of 124,000 pounds of zinc
- (i) One (1) natural gas-fired galvanizing kettle large shop, which has a heat input capacity of 25 million Btu per hour (mmBtu/hr);
- (j) One (1) natural gas-fired galvanizing kettle small shop, which has a heat input capacity of 12.48 mmBtu/hr;
- (k) One (1) natural gas-fired galvanizing large shop caustic burner, which has a heat input capacity of 0.0015 mmBtu/hr;
- (l) One (1) natural gas-fired galvanizing small shop caustic burner, which has a heat input capacity of 0.00018 mmBtu/hr;
- (m) Galvanizing large shop hot sticks, which has a heat input rated at 0.40 mmBtu/hr; and
- (n) Welding operations, one (1) Metal Inert Gas (MIG) welding, which has a maximum hourly rate of 1 pound per hour, and one (1) welding stick, which has capacity of 6.0 electrode per hour, and an oxyacetylene flame-cutting operation, which is capable of cutting 2 inches of metal per minute. The welding operations including the oxyacetylene flame-cutting operation are used for maintenance purposes.

Recommendation

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Information, unless otherwise stated, used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on November 21, 2000, and additional information received on December 11, 2000.

Emissions Calculations

- (a) Natural Gas Combustion Emissions, See pages 1 of 1 TSD Appendix A, for detailed emission calculations
- (b) Galvanizing Emissions:
Using emission factor (Ef) found in AP-42, Table 12.14-2, SCC 3-04-008-05
Galvanizing Ef, PM = 5 lb/ton of zinc used
 - (1) Small shop molten zinc usage = 200 pounds/hour

PM/PM10 = $200 \text{ lb/hr} * 8760 \text{ hr/yr} * \text{ton}/2000 \text{ lb} * 5 \text{ lb/ton} * \text{ton}/2000 \text{ lb}$
= 2.2 ton/year
 - (2) Large shop molten zinc usage = 500 pounds/hour

PM/PM10 = $500 \text{ lb/hr} * 8760 \text{ hr/yr} * \text{ton}/2000 \text{ lb} * 5 \text{ lb/ton} * \text{ton}/2000 \text{ lb}$
= 5.5 ton/year
- (c) Pickling:
The hydrochloric acid is purchased and used as a liquid solution at 32% HCL by weight at ambient temperature (90 °F) and pressure. No emissions from the pickling process occur, because the solution is not heated at 183 °F, which is the initial boiling point for 31.5% HCL to volatilize.
- (d) Welding Emissions: Using emission factor, Ef found in SCC 3-09-05-140
 - (1) MIG PM10 Emissions = $1 \text{ lb/hr} * 19.7 \text{ lb}/1000 \text{ lb electrode} * 8760 \text{ hr/yr} * \text{ton}/2000 \text{ lb} * (1 \text{ station})$
= 0.10 ton/yr
 - (2) Stick welding PM10 Emissions = $6 \text{ electrode/hr} * 0.3 \text{ lb/ electrode} * 19.7 \text{ lb}/1000 \text{ lb electrode} * \text{ton}/2000 \text{ lb} * 8760 \text{ hr/yr}$
= 0.20 ton/yr
 - (3) Flame-Cutting: Throughput = $20 \text{ in}/5\text{minute} * 60 \text{ min/hr} * \text{ft}/12 \text{ in}$
= $20 \text{ ft/hr} * \text{hr}/60 \text{ min} * 12 \text{ in/ft} * 0.5 \text{ in}/1\text{in}$
= $60 \text{ min/hr} * 8760 \text{ hr/yr} * 1/1000$
= 1051 kin/yr

Methodology:

$$\text{Emissions, ton/yr} = \text{Throughput, kin/yr} * \text{Ef, lb/kin} * \text{ton/2000 lb}$$

Oxyacetylene flame-Cutting			
Pollutant	Emission Factor (lb/kin)	Throughput (kin/yr)	Emissions (ton/yr)
PM10	0.1622	1051	0.1
Mn	0.0005	1051	0.0
Ni	0.0001	1051	0.0
Cr	0.0003	1051	0.0

SUMMARY OF EMISSIONS (TONS/YEAR)				
Pollutant	Galvanizing	Combustion	Welding	TOTAL UNCONTROLLED EMISSIONS
PM10	7.7	1.3	0.4	9.4
PM	7.7	0.3	0.4	8.4
VOC	0.0	0.9	0.0	0.9
NOx	0.0	16.7	0.0	16.7
SO2	0.0	0.1	0.0	0.1
CO	0.0	14.0	0.0	14.0

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	8.4
PM-10	9.4
SO ₂	0.1
VOC	0.9
CO	14.0
NO _x	16.7

Justification of Level of Approval

- (a) The existing source is re-registered pursuant to 326 IAC 2-5.5, since its potential to emit particulate matter (PM) or particulate matter less than ten microns (PM10) is greater than five (5) tons per year but less than 25 tons per year; and
- (b) The source potential to emit oxides of nitrogen (NOx) is greater than ten (10) tons per year but less than 25 tons per year.

Limited Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units.

	Limited Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO ₂	VOC	CO	NO _x	HAPs
Galvanizing	7.7	7.7	0.0	0.0	0.0	0.0	0.0
Natural Gas combustion	0.3	1.3	0.1	0.9	14.0	16.7	0.0
Welding	0.4	0.4	0.0	0.0	0.0	0.0	0.0
Total Emissions	8.4	9.4	0.1	0.9	14.0	16.7	0.0

Note: There are no control installed for these processes, therefore, the uncontrolled emissions are synonymous to controlled emissions.

County Attainment Status

The source is located in Delaware County.

Pollutant	Status (attainment, maintenance attainment, or unclassifiable; severe, moderate, or marginal nonattainment)
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	attainment
CO	attainment
Lead	not determined

- (a) Volatile organic compounds (VOC) and oxides of nitrogen are precursors for the formation of ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Delaware County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

- (b) Delaware County has been classified as attainment or unclassifiable for all the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) any of the criteria pollutant is not greater than or equal to 100 tons per year,
- (b) no single hazardous air pollutant (HAP) is emitted,
- (c) no combination of HAPs is emitted.

This existing source is being re-registered based on the new permitting rule, 326 IAC 2.

Federal Rule Applicability

- (a) New Source Performance Standards (NSPS) -
326 IAC 12 and 40 CFR Part 60, Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels)- No Volatile Organic Compounds have been determined from the caustic and hydrochloric acid solution used by the Witt Company, that are stored in tanks. Therefore, 326 IAC 12 and 40 CFR Part 60, Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels) will **not apply** to these storage tanks.
- (b) National Emission Standards for Hazardous Air Pollutants (NESHAP) -
326 IAC 12 and 40 CFR Part 63, Subpart CCC (National Emission Standards for Hazardous Air Pollutants for Steel Pickling - Hydrochloric Acid (HCL) Facilities and HCL Regeneration Plant. This NESHAP applies to the following facilities and plants that are major source of hazardous air pollutants (HAP) or are parts of the facilities that are major source for HAP.
 - (1) All new and existing steel pickling facilities that pickle carbon steel using HCL solution that contain 6 percent or more by weight and is at a temperature of 100 degrees Fahrenheit or higher; and
 - (2) All new and existing hydrochloric acid regeneration plants.

Witt Industries, Inc. is **not subject** to this NESHAP because it is not a major source for HAPs.

- (c) There are no other NESHAP applicable to this source, nor any NESHAP scheduled for promulgation that would apply to this source.

State Rule Applicability

- (a) 326 IAC 2-6 (Emission Reporting)
This source is not subject to 326 IAC 2-6 (Emission Reporting), because it does not emit any criteria pollutant at a rate of 100 tons/yr or greater.
- (b) 326 IAC 6-3 (Process Operations Particulate Emissions Limitations)
The source would be subject to this rule, which mandates PM allowable emissions using the

following equation:

$$E = 4.10 P^{0.67}$$

Where:

E = Allowable PM emissions, lb/hr

P = process weight rate, ton/hr

Process/Facility	Process Weight Rate (lbs/hour)	Process Weight Rate (ton/hr)	Allowable PM Emissions (lb/hr)
Large Shop Galvanizing	7,500	3.75	9.9
Small Shop Galvanizing	3,200	1.6	5.6
Welding	7.3 (<100 lb/hr)	0.00365 < 0.05	0.551

The above facilities or operations are in compliance with 326 IAC 326 IAC 6-3, because their emissions are less than their allowable emissions.

- (c) 326 IAC 6-2: (Particulate Emissions Limit from Indirect Heating Facilities)
This rule is not applicable to the source, because the natural gas fired combustion facilities in the application are not sources of indirect heating.
- (d) 326 IAC 8: (Facilities Emitting Volatile Organic Compounds (VOC))
There are no 326 IAC 8 rule that will apply to these facilities because they do not fit any of the processes described in 326 IAC 8, and no VOC is emitted from the process.

Conclusion

The operation of this hot dip galvanizing plant will be subject to the conditions of the attached proposed **Registration No. 035-12966-000376**.

Appendix A: Emissions Calculations

Natural Gas Combustion Only

MM BTU/HR <100

Small Industrial Boiler

1 galvanizing kettle large

shop @ 25 mmBtu/hr

1 galvanizing kettle small

shop @ 12.48 mmBtu/hr

1 galvanizing large

shop caustic burner @ .0015 mmBtu/hr

1 galvanizing small

shop caustic burner @ .18 mmBtu/hr

1 galvanizing large

shop caustic hot stick @ .4 mmBtu/hr

Company Name: Witt Industries , Inc.

Address City IN Zip: 2415 S. Walnut St., Muncie, IN 47302

Registration No.: 099-12966-00081

Reviewer: Aida De Guzman

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

38.1

333.4

Pollutant						
Emission Factor in lb/MMCF	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
				**see below		
Potential Emission in tons/yr	0.3	1.3	0.1	16.7	0.9	14.0

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).